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METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1965

Annual Summary

PART B

SNOWFALL

CONTENTS

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INDIA WEATHER REVIEW 1965

ANNUAL SUMMARY - PART-B

S N O W F A L L

This part contains a summary of the reports of snowfall in the mountain regions of north India based on (a) records of snowfall observations made at the observatories and (b) reports collected by local officers from the local residents, headmen of villages or from travellers who have passed through the region, and then transmitted to this office.

The amount of snowfall is usually measured by finding the depth of undisturbed snow lying on the ground. The measurements are given in metres or centimetres. At places provided with raingauges the snow, collected in the gauge, is melted and measured as rain. The heights of well-known peaks are reported in the nearest metres, wherever available, while the heights of mountain ranges etc. are reported in tens of metres. In the description the figures given for depths for a month indicate the total amount of snowfall which occurred during that month.

Winter Period - January and February

I - JAMMU AND KASHMIR

SRINAGAR DISTRICT

Srinagar (1585 m.) - It snowed on eight days in January at the station proper, two days were in the first week and the remaining six were in the last two weeks. It was reported that the snowfalls on the 19th-20th were heavy. In February, snowfalls were experienced on five occasions in the valley and on a number of occasions on the adjoining peaks. The total amounts of precipitation in these months were 9 cm. and 10 cm. respectively. All the surrounding peaks and passes were covered with snow during the period.

The snowfall was normal during the period.

UDHAMPUR DISTRICT

Patnitop (Batote) (2033 m.) - Snowfall was experienced in the region on five days in January and on eight days in February, in which month there were spells from 3rd to 7th and 16th to 18th. The depth of snow was not recorded.

LADAKH DISTRICT

Sonamarg (2515 m.) - Snowfalls were experienced on three days in each of the months, January and February. The snowfalls on the 10th January, 12th and 19th February were heavy, the depths being about 30 cm. each. The depths of snowfall in these months were 55 cm. and 80 cm. respectively.

The snowfall was below normal in January and normal in February.

Leh (3514 m.) - Snow fell on the 4th-5th January and again on the 4th February, the depth in the respective months being 3 cm. and 4 cm. at the station proper. The accumulations of snow were about 15 cm. each at heights ranging from 5500 m. to 6100 m. in January and at heights ranging from 6100 m. to 6700 m. in February.

The snowfall was much below normal in January and normal in February.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Churah

Tissa (1570 m.) - It snowed on two days each in January and February; viz: 3rd and 19th January and 13th and 18th February. The depths of snowfall amounted to 45 cm. and 76 cm. in the respective months. The heaviest fall during the period was 45 cm. on the 13th February.

Bhandal (1730 m.) - It snowed on two days in January and on seven days in February, in which month there were two spells from 12th to 14th and 17th to 19th. The respective depths in these months were 20 cm. and 62 cm.

The snowfall was below normal in January and normal in February.

Chamba

Chamba (924 m.) - No snow fell at the station proper in January but there were light snowfalls on the 3rd and 13th February, the depth amounting to 4 cm. In the region snowfalls descended to heights of 1500 m. in January. The amounts of snow accumulation on some well-known passes were as under :

Name of Pass	Accumulation	
	January	February
Sach (4420 m.)	3.7 m.	3.7 m.
Basodhan (2740 m.)	1.8 m.	1.8 m.
Kalichho (5000 m.)	4.3 m.	4.3 m.
Padhri (3660 m.)	2.1 m.	1.5 m.

The snowfall in the region was below normal in January and normal in February.

Ludrera (924 m.) - The report for January was not received. No snow fell during February.

Bhanota (914 m.) - No snow fell during the period.

Upper Chamba Range

Chhattrari (1793 m.) - Snowfall occurred on the 3rd and 19th January and on the 13th, 16th and 18th February, the total depths amounting to 18 cm. and 34 cm. respectively. The heaviest fall during the period was 30 cm. on the 13th February. Surrounding peaks such as Kanikote, Sabrew and Baliani experienced heavy snowfalls on five days in January and on four days in February. The depths on these peaks were about 75 cm. each in January and 30 cm. each in February. The accumulations of snow on these peaks were as under :-

Name of Peak	Accumulation	
	January	February
Baliani	1.8 m.	1.5 m.
Kanikote	2.1 m.	1.8 m.
Sabrew	2.1 m.	1.5 m.

The snowfall was below normal during the period.

Bhattiyat

Kalatop (Dalhousie Range) (2414 m.) - Snowfall was experienced on the 2nd, 3rd, 16th and 17th January, the depth being 71 cm. There were two almost continuous spells of snowfall in February, viz: 2nd to 5th and 12th to 20th. The total depth amounted to 2.2 m. The heaviest falls during the period were 45 cm. each on the 3rd January and 12th February.

The snowfall was below normal in January and above normal in February.

Bhattiyat Range - Snowfall was experienced during the period throughout the range. The depth of snowfall was about 55 cm. in January and about 85 cm. in February.

Chowari (1021 m.) - No snow fell during the period.

Bathree (1372 m.) - No snow fell during the period.

Trehta Range - There were slight snowfalls in both the months, the total depths being about 10 cm. in each of the months.

The snowfall was below normal during the period.

Bharmaur

Bharmaur (2155 m.) - The station experienced snowfall on the 3rd to 5th, 20th, 22nd and 29th January and 4th to 6th and 13th to 20th February. The total depths in these months were about 55 cm. and 1.1 m. respectively.

Bharmaur Range - Snowfalls were experienced in both the months throughout the range, the depths being about 50 cm. in January and about 1.1 m. in February. Accumulation of snow was present on the surrounding passes, such as Chobia and Kugti, the amounts varying from 1.8 m. to 2.4 m.

The snowfall was below normal in January and normal in February.

MAHASU DISTRICT

Chopal (2342 m.) - The tehsil received snowfall in both the months. The depth of snowfall at Chopal proper was 40 cm. in January and 1.4 m. in February. The corresponding depths of snowfall on the highest peak of Chur Dhar were 1.5 m. and 3.7 m. As a result of the snowfalls, the well-known passes such as Khirki, Talra and Chhattar Dhar were blocked and remained closed throughout the period.

The snowfall was much above normal during the period.

Shilaroo (2591 m.) - Snow fell during the 3rd to 5th and 19th to 22nd January and on six days in February, mostly in the middle of the month, the depths being 35 cm. and 1.6 m. respectively. The snow did not accumulate.

The snowfall was below normal in January and above normal in February.

Phancha (Pandra Bis Range) (2271 m.) - Snowfall was experienced in both the months, the total depths being 38 cm. in January and 2.9 m. in February.

The snowfall was below normal in January and slightly above normal in February.

Junga (1989 m.) - No snow fell during the period.

Rampur (1067 m.) - Snowfalls or snowstorms, extending throughout the area of the tehsil, occurred on the 20th January and on the 4th, 5th, 13th and 17th to 19th February. The depth of snowfall at the station proper was about 3 cm. after the last falls in February. The amounts of snow accumulation on Daran Ghati were 45 cm. in January and 1.2 m. in February.

The snowfall was below normal in January and above normal in February.

Kumarsain (1388 m.) - It snowed on the 3rd and 19th January and on the 4th, 5th, 13th, 14th and 17th to 20th February. The snowfalls descended to elevations of 1500 m. in January and 1200 m. in February. The depths of snowfall at Narkanda were 45 cm. in January and 1.5 m. in February, while the depth at Hatu peak was 60 cm. in January. The amounts of snow accumulation were 8 cm. at heights of 1500 m. and 60 cm. to 75 cm. at heights of 2750 m. in January; the amounts at Narkanda and Kumarsain proper were 1.5 m. and 10 cm. respectively at the end of the period.

The snowfall was below normal in January and normal in February.

Theog (2286 m.) - Snowfalls were experienced in both January (2nd, 4th and 20th) and February, the depths being 30 cm. and 1.3 m. respectively at the station proper. The depths of snowfall on the well-known peaks of Tir Mahasu and Kanagi were about 45 cm. in January and 1.7 m. in February. The same amounts were reported as the accumulations on these peaks at the end of the respective months.

The snowfall was below normal in January and above normal in February.

Kotgarh (1829 m.) - Snowfall occurred on the 3rd and 20th January, the depth being 11 cm. February witnessed four snowfalls during the middle of the month, the depth amounting to 41 cm. The amount of snow accumulation on Sidhpur was 1.8 m. in February.

The snowfall was normal during the period.

Kotkhai (1676 m.) - The station proper experienced 10 cm. of snowfall in January and 42 cm. of snowfall in February. The snowfalls occurred on the peaks on the 3rd, 4th and 20th January and in three spells in February viz. 4th & 5th, 13th & 14th and 17th to 20th. The depths of snowfall were estimated to have been of the order of 75 cm. in January and 2.4 m. in February on each of the following peaks :- Khara Pathar (2590 m.), Naira (2290 m.), Joshla (2440 m.), Mundroo (2440 m.) and Bagi (2740 m.).

The snowfall was below normal in January and above normal in February.

Suni (510 m.) - The tehsil experienced snowfall in January on two occasions, viz. 3rd and 19th, the total depth being 33 cm. The snowfalls descended to the elevations of 1500 m. The amount of snow accumulation on Shali peak (2740 m.) was about 10 cm. at the end of the month. The report for February was not received.

The snowfall was below normal in January.

Lower Pabar Range

(i) Bashla (2286 m.) - Heavy snowfall occurred once in January on the 19th and on ten days in February, in which the last spell of 5 days was from the 15th of the month. The corresponding total depths in these months amounted to 30 cm. and 2.9 m. The heaviest falls were 61 cm. each on the 12th and 19th February.

The snowfall was normal in January and very much above normal in February.

(ii) Khadrala (2957 m.) - It snowed on four days in January and on ten days in February, of which there was an almost continuous spell of seven adays from the 12th February, the corresponding depths of snowfall being 94 cm. and 4.5 m. The heaviest falls in these months were 63 cm. on 19th January and 91 cm. each on the 12th and 19th February.

The snowfall was below normal in January and very much above normal in February.

Arki (1219 m.) - No snow fell at the station proper during the period, but 30 cm. of snowfall was experienced at Baridhar (2140 m.) on the 12th February.

The snowfall was below normal in January and above normal in February.

Solan (1530 m.) - No snow fell during the period.

Jubbal (1891 m.) - It snowed on the 4th and 20th January and on five days in February during the 13th to 19th of the month, the total depths being 19 cm. and 66 cm. in the respective months. The highest peak Chambi Kupar experienced snowfall amounting to 1.2 m. to 1.5 m. in January and 2.4 m. to 3.0 m. in February, while the corresponding depths at Khara Pathar pass were 90 cm. to 1.1 m. and 1.8 m. to 2.3 m. in these months. The same amounts were reported as the accumulations at the respective places at the ends of these months.

The snowfall was below normal in January and normal in February.

Mashobra (2270 m.) - Snowfall was experienced on the 3rd to 5th and 20th January and 13th, 16th to 21st February, the depths being 37 cm. and 92 cm. respectively. The snow accumulation was about 50 cm. at the end of January and about 1.5 m. at the end of February.

The snowfall was above normal during the period.

Kasumpti (1989 m.) - The station received about 20 cm. and 40 cm. of snowfall in January and February respectively.

The snowfall was below normal during the period.

KINNAUR DISTRICT

Kilba-Kailash Range

(i) Kilba (1829 m.) - Snowfall was reported during January and February; the corresponding total depths in these months were 2 cm. and 61 cm. The snowfall occurred on the 4th and 20th January and on five days in the first fortnight and four days in the third week of February.

The snowfall was below normal in January and much above normal in February.

(ii) Sangla (2591 m.) - The station experienced snowfall in both the months, the total depths being 2 cm. in January and 1.3 m. in February. The snowfalls occurred at the same periods as recorded by the station Kilba in the range.

The snowfall was below normal in January and much above normal in February.

SIRMUR DISTRICT

Nahan - No snow fell during the period.

Paonta - No snow fell in January. Snowfall was experienced on the 13th February, the depth being 61 cm. The same amount was reported as the accumulation at the end of the period.

The snowfall was normal in January and above normal in February.

Renuka - Isolated snowfalls were experienced on the surrounding peaks and passes in both the months. The details are given below :-

Name of location	Depth of snowfall	
	January	February
Haripur Dhar	15 cm.	40 cm.
Nohra Dhar	-	90 cm.
Bog Dhar	-	60 cm.
Dawage Dhar/Dewali Dhar	-	5 cm.

There was about 30 cm. accumulation of snow on the passes of Jani Dhar and Chandpur Dhar at the end of the period.

The snowfall was below normal during the period.

Pachhad - The tehsil experienced snowfall on three occasions during the period viz. 19th January, 13 and 19th February. The approximate depths of snowfall at various heights are summarised below :-

Location	Depth of snowfall	
	January	February
1200 m. to 1500 m.	5 cm.	5 cm.
1500 m. to 2150 m.	38 cm.	30 cm.
2150 m. to 2750 m.	45 cm.	1.0 m.
2750 m. to 3500 m.	45 cm.	3.0 m.

The snowfall was above normal during the period.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT

No snow fell at the station proper during January but the ridges over 2130 m. experienced 18 cm. and above of snowfall on the 20th of the month. The peaks of Surkanda, Nag Tiba, Taru-ka-Danda and Dhanolti were covered with snow in January. There was no occurrence of snowfall in the district during February.

The snowfall was below normal during the period.

GARHWAL DISTRICT

Snowfall was experienced on two occasions each in January and February. The depth of snow was about 3 cm. on the peaks with heights of 1850 m. to 2150 m. in February. The snow accumulation was about 4 cm. during the period.

The snowfall was about normal during the period.

ALMORA DISTRICT

The depths of snowfall and the amounts of snow accumulation at the end of each month on the well-known peaks of Malla Danpur were reported as under :-

Name of Peak	Depth of Snowfall		Accumulation	
	January	February	January	February
Kautela	1.2 m.	1.5 m.	0	0
Kafini	1.8 m.	2.4 m.	60 cm.	60 cm.
Bankatia	2.7 m.	3.4 m.	2.1 m.	1.8 m.
Pindar	2.4 m.	2.7 m.	2.7 m.	2.1 m.
Nanda Devi	3.7 m.	4.0 m.	3.0 m.	2.7 m.
Sundardhunga	2.4 m.	2.4 m.	2.4 m.	1.8 m.

The snowfall was above normal during the period.

NAINITAL DISTRICT

Mukteswar (2310 m.) - Snowfall was experienced on the 3rd and 20th January and on the 12th to 14th and 17th to 20th February. The respective total depths were about 15 cm. and 35 cm. as some of the snow had melted soon afterwards. The snowfall extended to all the surrounding hills such as Nainital, Ramgarh, Gagarh during both months.

The snowfall was below normal in January and normal in February.

Pre - Monsoon Period - March to May

I - JAMMU AND KASHMIR

NORTH BARAMULLAH DISTRICT

Gulmarg (2652 m.) - The reports for March and April were not received. It snowed heavily in May. The snowfalls were accompanied by occasional hail-storms. Adjoining peaks like Apharwat and Handibal had an abnormal amount of snow accumulation at the end of the period.

SRINAGAR DISTRICT

Srinagar (1585 m.) - The valley did not experience any snowfall during the period, but the adjoining peaks and passes experienced light to moderate snowfalls in March. There were also snowfalls on several occasions in April and May on these peaks and passes. A thick layer of snow was visible on all the surrounding peaks and passes during the period.

The snowfall was above normal during the period.

Qazigund (1690 m.) - The reports for March and April were not received. During May slight snowfall was experienced over Banihal pass and the eastern side of the mountains while a good amount fell on the western side of the mountains and valley towards Shopian Rajawri. Accumulation of snow was present on these regions at the end of the period.

The snowfall was about normal in May.

UDHAMPUR DISTRICT

Patnitop (Batote) (2033 m.) - Snowfall was experienced on the 9th, 10th and 17th March. The depth of snow was not recorded. The reports for April and May were not received.

Banihal (1624 m.) - The reports for March and April were not received. Snowfall was experienced on two occasions on the high peaks in May. The snow accumulation on the peaks of Banihal and the eastern ranges at the end of the period were slightly more than usual.

LADAKH DISTRICT

Sonamarg (2515 m.) - The station recorded two spells of snowfall in March and one in April, viz. 4th & 5th and 15th to 17th March and 22nd & 23rd April. There was no occurrence of snowfall in May. The depths of snowfall were 56 cm. in March and 13 cm. in April.

The snowfall was below normal during the period.

Leh (3514 m.) - There was no occurrence of snowfall during March and April at the station proper. It snowed on the 13th and 14th May in the region. The depth at the station proper was 7 cm. while that on the passes and peaks was about 10 cm. There was about 30 cm. of snow accumulation at heights ranging from 5500 m. to 6100 m. at the end of each of the months.

The snowfall was below normal during the period.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Pangi

Kilar (Pangi Range) (2564 m.) - The report for March was not received. No snow fell during April and May.

Churah

Tissa (1570 m.) - No snow fell during the period.

Bhandal (1730 m.) - No snow fell during the period.

Chamba

Chamba (924 m.) - There was no occurrence of snowfall at the station proper during the period. The snowfalls were confined to the high altitudes above 2150 m. in March and above 3050 m. in April and May. The amounts of snow accumulation of some well-known passes at the end of each of the months were reported as under :-

Name of Pass	Accumulation		
	March	April	May
Sach	3.0 m.	1.8 m.	1.5 m.
Basodhan	60 cm.	0	-
Kalichho	3.7 m.	3.0 m.	2.4 m.
Padhri	2.1 m.	60 cm.	-
Chehni	-	-	3.0 m.

The snowfall was above normal during the period.

Ludrera (924 m.) - No snow fell during the period.

Bhanota (914 m.) - No snow fell during the period.

Upper Chamba Range

Chhattrari (1793 m.) - The station proper did not experience any snowfall during the period. The highest peaks in the range experienced snowfall on four to six days in each of the months. The depths were about 15 cm. in March, 8 cm. in April and 5 cm. in May. The amounts of snow accumulation on some well-known peaks at the end of the e ach of the months were reported as under :-

Name of Peak	Accumulation		
	March	April	May
Baliani	1.2 m.	90 cm.	60 cm.
Kanikote	1.5 m.	1.2 m.	75 cm.
Sabrew	1.4 m.	90 cm.	60 cm.

The snowfall was about normal during the period.

Bhattiyat

Kalatop (Dalhousie Range) (2414 m.) - Snowfall occurred on four days in the second half of March and on five days in April in which month three days were in the first half. The depths were 46 cm. in March and 15 cm. in April. No snow fell in May.

The snowfall was normal during the period.

Bhattiyat Range - Snowfall was experienced during each of the months, the depths being about 95 cm. in March and 7 cm. each in April and May.

Chowari (1021 m.) - No snow fell during the period.

Bathree (1372 m.) - No snow fell during the period.

Trehta Range - A small amount of snow fell in March. No snow fell during April and May.

Bharmaur

Bharmaur (2155 m.) - Snowfall was experienced on five days in the second fortnight of March, the depth being 66 cm. No snow fell during April and May.

Bharmaur Range - The range experienced snowfall in March only. The depth of snow was about 65 cm. Snow accumulation was present on the passes in the range.

The snowfall was below normal during the period.

MAHASU DISTRICT

Chopal (2342 m.) - The station experienced 23 cm. of snowfall in March while the highest peak of Chur Dhar received about 60 cm. of snowfall. The station proper did not experience any snowfall during April and May.

The snowfall was above normal in March and normal in April and May.

Phancha (Pandra Bis Range) (2271 m.) - The station recorded 41 cm. of snowfall in March. There was no occurrence of snowfall during April and May.

The snowfall was normal during the period.

Junga (1989 m.) - No snow fell during the period.

Rampur (1067 m.) - Snowfall occurred on the 19th and 20th March. The snowfalls occurred at heights above 1520 m. in the tehsil. The amount of snow accumulation on the high peaks of Daran Ghati was estimated to have been about 45 cm. at the end of the month. No snow fell during April and May.

The snowfall was below normal in March and April and normal in May.

Theog (2286 m.) - The station experienced snowfalls during March and April, the depths being 5 cm. in each of the months. The well-known peaks of Tir Mahasu and Kanagi received 15 cm. of snowfall during the period March and April. The same amount was reported as the accumulation on these peaks at the end of April. The report for May was not received.

The snowfall was above normal in March and April.

Kotkhai (1676 m.) - The station recorded 4 cm. of snowfall in March. No snow fell during April and May.

The snowfall was below normal in March and normal in April and May.

Arki (1219 m.) - No snow fell during the period.

Solan (1530 m.) - No snow fell during the period.

Kasumpti (1989 m.) - The station recorded 8 cm. of snowfall in March. No snow fell during April and May.

KINNAUR DISTRICT

Kilba - Kailash Range

(i) Kilba (1829 m.) - The station experienced snowfall on the 8th, 19th and 20th March, the depth being 28 cm. There was no occurrence of snowfall during April and May.

The snowfall was below normal during the period.

(ii) Sangla (2591 m.) - It snowed on five days in March and on one day in April, the depths being 76 cm. and 3 cm. respectively. No snow fell during May.

The snowfall was about normal in March and below normal during April and May.

MANDI DISTRICT

Mandi Forest Division - The reports for March and April were not received. The high peaks reeeived about 1.2 m. snowfall in May. There was 1.5 m. snow accumulation on these peaks at the end of the period.

The snowfall was above normal in May.

SIRMUR DISTRICT

Nahan - No snow fell during the period.

Paonta - No snow fell during the period.

Renuka - The lower regions of the tehsil did not experience any snowfall during the period. However, the high peaks and passes such as Haripur Dhar, Nohra Dhar and Bhog Dhar received about 1.5 m., 1.1 m. and 15 cm. to 30 cm. snowfall respectively. The snowfalls occurred on the 19th, 20th, 30th and 31st March.

The snowfall was below normal in March.

Pachhad - There was no occurrence of snowfall at the lower regions in the tehsil. The higher peaks and passes experienced snowfall on the 19th March only during the period. The approximate depths were about 3 cm. to 15 cm. at heights of 1500 m. to 2150 m., 10 cm. to 15 cm. at heights of 2150 m. to 2750 m. and 15 cm. to 25 cm. at heights of 2750 m. to 3500 m.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT - No snow fell during the period.

GARHWAL DISTRICT - The reports for March and April were not received. No snow fell during May.

ALMORA DISTRICT - The total depths of snowfall and the amounts of snow accumulation at the end of each month on the well-known peaks of Malla Danpur were as under :-

Name of Peak	March	April	May
SNOWFALL			
Kautela	1.2 m.	0	0
Kafini	1.8 m.	0	15 cm.
Bankatia	2.4 m.	60 cm.	90 cm.
Pindar	2.1 m.	15 cm.	45 cm.
Nanda Devi	3.0 m.	45 cm.	60 cm.
Sundardhunga	1.8 m.	15 cm.	30 cm.
ACCUMULATION			
Kautela	60 cm.	90 cm.	45 cm.
Kafini	1.2 m.	1.2 m.	90 cm.
Bankatia	2.4 m.	3.7 m.	3.0 m.
Pindar	2.4 m.	2.4 m.	2.1 m.
Nanda Devi	3.0 m.	3.0 m.	2.4 m.
Sundardhunga	1.8 m.	1.8 m.	1.2 m.

The snowfall was above normal in March and below normal in April and May.

NAINITAL DISTRICT

Mukteswar (2310 m.) - The station experienced snowfall on the 23rd and 31st March, the depth of snow being about 10 cm. as some of the snow had melted. The snowfall extended to all the surrounding hills such as Ninital, Ramgarh and Gagarh. No snow f ell during April and May.

The snowfall was above normal in March and normal in April and May.

Southwest Monsoon Period - June to September

June - July

I - JAMMU AND KASHMIR

NORTH BARAMULLAH DISTRICT

Gulmarg (2652 m.) - Four snowfalls were observed on the Handibal and Apharwat mountains on the 5th to 7th and 23rd June. No snow fell in July. Accumulation of snow was present on both these mountains during the period, but it was more than usual in both the months.

SRINAGAR DISTRICT

Srinagar (1585 m.) - No snowfalls were experienced in the r egion during June and July. However, snow accumulation was present on the surrounding passes and peaks during the entire period.

The snowfall was below normal in June and normal in July.

LADAKH DISTRICT

Sonamarg (2515 m.) - No snow fell during the period.

Leh (3514 m.) - The station proper did not experience any snowfall during the period. However, snowfall occurred on the passes on the 6th June, the depth being about 15 cm. at heights of 5500 m. In July, there were five fall falls at heights ranging from 4550 m. to 5200 m. The depths during each fall were under 10 cm.

The snowfall was about normal during the period.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Bhattiyat

Bhattiyat Range - About 7 cm. of snow fell in each of the months during the period.

Trehta Range - No snow fell during the period.

Bharmaur

Bharmaur Range - No snow fell during the period.

MAHASU DISTRICT - No snowfalls were experienced at the stations Chopal (2342 m.), Phancha (2271 m.), Junga (1989 m.), Kotkhai (1676 m.), Arki (1219 m.) and Solan (1530 m.) during the period. The station Kasumpti (1989 m.) did not experience snowfall in June and its report for July was not received.

KINNAUR DISTRICT - No snowfalls were reported during June by the stations Kilba (1829 m.) and Sangla (2591 m.) in Kilba-Kailash Range. The r eport for July was not received.

KULU DISTRICT -

Kulu (1218 m.) - Slight snowfall occurred on the high peaks of the tehsil during the period. The amount of snow accumulation on the high peaks of Hampta and Rohtang was about 60 cm. at the end of the period.

The snowfall was normal during the period.

SIRMUR DISTRICT - No snow fell in the district during the period.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT - No snowfalls were experienced during the period.

ALMORA DISTRICT - The total depths of snowfall and the amounts of accumulation at the ends of the months on some well-known peaks of Malla Danpur were as under :-

Name of Peak	Depth of Snowfall		Accumulation	
	June	July	June	July
Kautela	15 cm.	23 cm.	15 cm.	15 cm.
Kafini	30 cm.	30 cm.	75 cm.	60 cm.
Bankatia	75 cm.	90 cm.	2.4 m.	2.4 m.
Pindar	60 cm.	60 cm.	2.1 m.	2.1 m.
Nanda Devi	90 cm.	90 cm.	2.4 m.	2.4 m.
Sundardhunga	60 cm.	60 cm.	1.2 m.	1.2 m.

The snowfall was above normal during the period.

NAINITAL DISTRICT

Mukteswar (2310 m.) - No snowfall occurred during the period.

August - September

I - JAMMU AND KASHMIR

NORTH BARAMULLAH DISTRICT

Gulmarg (2652 m.) - No snowfall was observed in the region during August. One light snowfall occurred on the 19th September on the Handibal mountain ranges. Slight snow accumulation was present on the Apharwat, Handibal and Tosa mountain ranges during both the months.

The snowfall was below normal during the period.

SRINAGAR DISTRICT

Srinagar (1585 m.) - There was no occurrence of snowfall during the period. However, a layer of snow was visible on some of the surrounding higher peaks during both the months.

The snowfall was normal in August and below normal in September.

LADAKH DISTRICT

Sonamarg (2515 m.) - No snow fell during the period.

Leh (3514 m.) - The station proper did not experience any snowfall during August. Isolated light snowfalls were experienced on five days in the first fortnight of August and heights ranging from 3650 m. to 4250 m. The depth during each fall was about 5 cm. The report for September was not received.

The snowfall was normal in August.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Upper Chamba Range

Chhattrari (1793 m.) - The higher peaks of the range experienced snowfall on the 10th and 23rd August and again on the 2nd and 4th September. The total depth was 3 cm. in each month. The amounts of the accumulation of snow on some well-known locations at the ends of August and September were as under :-

Name of Peak	Accumulation	
	August	September
Baliani	45 cm.	70 cm.
Kanikote	53 cm.	85 cm.
Sabrew	53 cm.	70 cm.

The snowfall was above normal during the period.

Bhattiyat

Bhattiyat Range - About 7 cm. snowfall was experienced in each of the months during the period.

Trehta Range - No snow fell during the period.

Bharmaur

Bharmaur Range - No snow fell during the period.

MAHASU DISTRICT - No snow fell during the period at Chopal (2342 m.), Phancha (2271 m.), Junga (1989 m.), Kotkhai (1676 m.), Arki (1219 m.) and Solan (1530 m.).

KINNAUR DISTRICT - No snowfalls were reported during August by the stations Kilba (1829 m.) and Sangla (2591 m.) in Kilba-Kailash Range. The r eport for September was not received.

KULU DISTRICT

Kulu (1218 m.) - The report for August was not received. In September, snowfall was observed on the Rohtang and Chander Khani ranges, the depths were about 5 cm. to 8 cm.

SIRMUR DISTRICT - There was no occurrence of snowfall in the district during August and September.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT - No snowfall was reported during the period.

ALMORA DISTRICT - The total depths of snowfall and the amounts of accumulation on some well-known peaks of Malla Danpur were reported as under :-

Name of Peak	Depth of snowfall		Accumulation	
	August	September	August	September
Kautela	0	0	0	0
Kafsini	30 cm.	15 cm.	60 cm.	60 cm.
Bankatia	75 cm.	60 cm.	1.5 m.	1.8 m.
Pindar	60 cm.	60 cm.	1.8 m.	2.1 m.
Nanda Devi	90 cm.	75 cm.	2.4 m.	2.1 m.
Sundardhunga	60 cm.	60 cm.	1.2 m.	1.2 m.

The snowfall was above normal in August and normal in September.

NAINITAL DISTRICT

Mukteswar (2310 m.) - No snowfall was experienced during August and September.

Post-Monsoon Period - October to December

I - JAMMU AND KASHMIR

SRINAGAR DISTRICT

Srinagar (1585 m.) - The region experienced snowfalls throughout the period but in the first two months, the snowfalls were confined to the surrounding higher peaks. In November, three snowfalls were observed on the surrounding peaks with elevations above 2450 m. In December, one snowfall was observed in the valley. Accumulation of snow was present on the high peaks in all the months.

The snowfall was below normal during the period.

UDHAMPUR DISTRICT

Patnitop (Batote) (2033 m.) - The reports for October and November were not received. Snowfalls were reported on the 23rd and 24th December, but the depths were not recorded.

The snowfall was below normal during December.

LADAKH DISTRICT

Kargil (2679 m.) - The reports for October and November were not received. It was reported that the station experienced the first snowfall of the season on the 24th December. The depth of snow was 5 cm. at the station proper and about 15 cm. on the surrounding peaks and passes.

The snowfall was below normal during December.

Sonamarg (2515 m.) - No snow fell in October. Snowfall was experienced on the 19th November and on the 22nd and 30th December, the depths being about 25 cm. and 30 cm. in the respective months.

The snowfall was below normal during the period.

Leh (3514 m.) - Snowfalls were experienced in the region during the period on the 18th October, 4th November and 24th December. The depths were 15 cm. at heights of 5500 m. to 6100 m. in October, 10 cm. at heights of 5500 to 6100 m. in November and 2 cm. each at the station proper as well as on the peaks and passes in December.

The snowfall was below normal during the period.

Khangral - The report for October was not received. Snowfall was experienced on the 15th November and on the 24th December at the station. The depths were 3 cm. and 5 cm. in the respective months.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Upper Chamba Range

Chhattrari (1793 m.) - Snowfalls occurred on the high peaks of the range on the 7th and 19th October, 13th and 25th November and 23rd to 25th December. The depths were about 15 cm. in October, about 50 cm. in Novem-

ber and about 1.8 m. in December on the peaks of Kanikote, Sabrew and Baliani. The corresponding amounts of accumulation of snow at the end of each month were as under :-

Name of Peak	Accumulation		
	October	November	December
Baliani	75 cm.	85 cm.	3.0 m.
Kanikote	95 cm.	1.0 m.	3.4 m.
Sabrew	75 cm.	80 cm.	3.7 m.

The snowfall was above normal during the period.

Bhattiyat

Bhattiyat Range - About 7 cm. of snowfall was received in each of the months during the period.

Trehta Range - There was no occurrence of snowfall in October and November. Slight snowfall occurred in December, the depth being less than 1 cm.

The snowfall was below normal during the period.

Bharmaur

Bharmaur Range - No snow fell during October and November. Snowfall was experienced in December, the depth being about 30 cm.

The snowfall was below normal during the period.

MAHASU DISTRICT

Chopal (2342 m.) - No snowfalls were reported during October and November. The region experienced one snowfall on the 24th December. The depths were 1 cm. at the station proper and 15 cm. on Chur Dhar peak.

The snowfall was below normal during the period.

Phancha (Pandra Bis Range) (2271 m.) - No snow fell during the period.

Junga (1989 m.) - No snow fell during the period.

Kotkhai (1676 m.) - No snow fell during the period.

Arki (1219 m.) - No snow fell during the period.

Solan (1530 m.) - No snow fellduring the period.

KINNAUR DISTRICT

Kilba-Kailash Range

(i) Kilba (1829 m.) - No snow fell during October and November. The station experienced 5 cm. of snowfall on the 24th December.

The snowfall was below normal in October and November and about normal in December.

(ii) Sangla (2591 m.) - There were no snowfalls during October and November. The station recorded one snowfall on the 24th December, the depth being 13 cm.

The snowfall was below normal in October and November and about normal in December.

SIRMUR DISTRICT - There were no snowfalls in the district during the period.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT - No snowfall was experienced in the district during the period.

GARHWAL DISTRICT - No snowfall occurred in the district during the period.

ALMORA DISTRICT - The depths of snowfall and the amounts of snow accumulation at the end of each month on the well-known peaks of Malla Danpur were reported as under :-

Name of Peak	October	November	December
SNOWFALL			
Kautela	8 cm.	15 cm.	8 cm.
Kafini	23 cm.	30 cm.	8 cm.
Bankatia	75 cm.	90 cm.	30 cm.
Pindar	85 cm.	1.1 m.	45 cm.
Nanda Devi	90 cm.	1.1 m.	45 cm.
Sundardhunga	75 cm.	90 cm.	30 cm.
ACCUMULATION			
Kautela	0	8 cm.	0
Kafini	0	30 cm.	0
Bankatia	2.1 m.	2.3 m.	2.0 m.
Pindar	2.3 m.	2.4 m.	2.1 m.
Nanda Devi	2.9 m.	3.0 m.	2.7 m.
Sundardhunga	1.5 m.	1.8 m.	1.4 m.

The snowfall was below normal during the period.

NAINITAL DISTRICT

Mukteswar (2310 m.) - No snow fell during the period.

IV - WEST BENGAL

DARJEELING DISTRICT

Darjeeling (2128 m.) - The report for October was not received. No snow fell during November and December.

S U M M A R Y

Winter Period - January and February

Snowfall during the period was slightly below normal in Jammu and Kashmir and normal in Punjab, Himachal Pradesh and Uttar Pradesh.

Pre-Monsoon Period - March to May

Snowfall during the period was slightly below normal in Jammu and Kashmir and normal in Punjab, Himachal Pradesh and Uttar Pradesh.

Monsoon Period - June and July

As usual hardly any snow fell in Jammu and Kashmir, Punjab, Himachal Pradesh, while snowfall was above normal in Uttar Pradesh.

Monsoon Period - August and September

The snowfalls were mostly confined to the high altitudes. The snowfall was slightly below normal in Jammu and Kashmir but it was slightly above normal in Uttar Pradesh.

Post-Monsoon Period - October to December

Snowfall during the period was generally below normal in Jammu and Kashmir, Punjab, Himachal Pradesh and Uttar Pradesh.

** ** ** **

N. B :- It is not possible to adopt a single classification of seasons which will be satisfactory for the whole of India. The classification adopted in this publication is devised from the point of view of rainfall in the country.

SG./Rotaprint, Poona.